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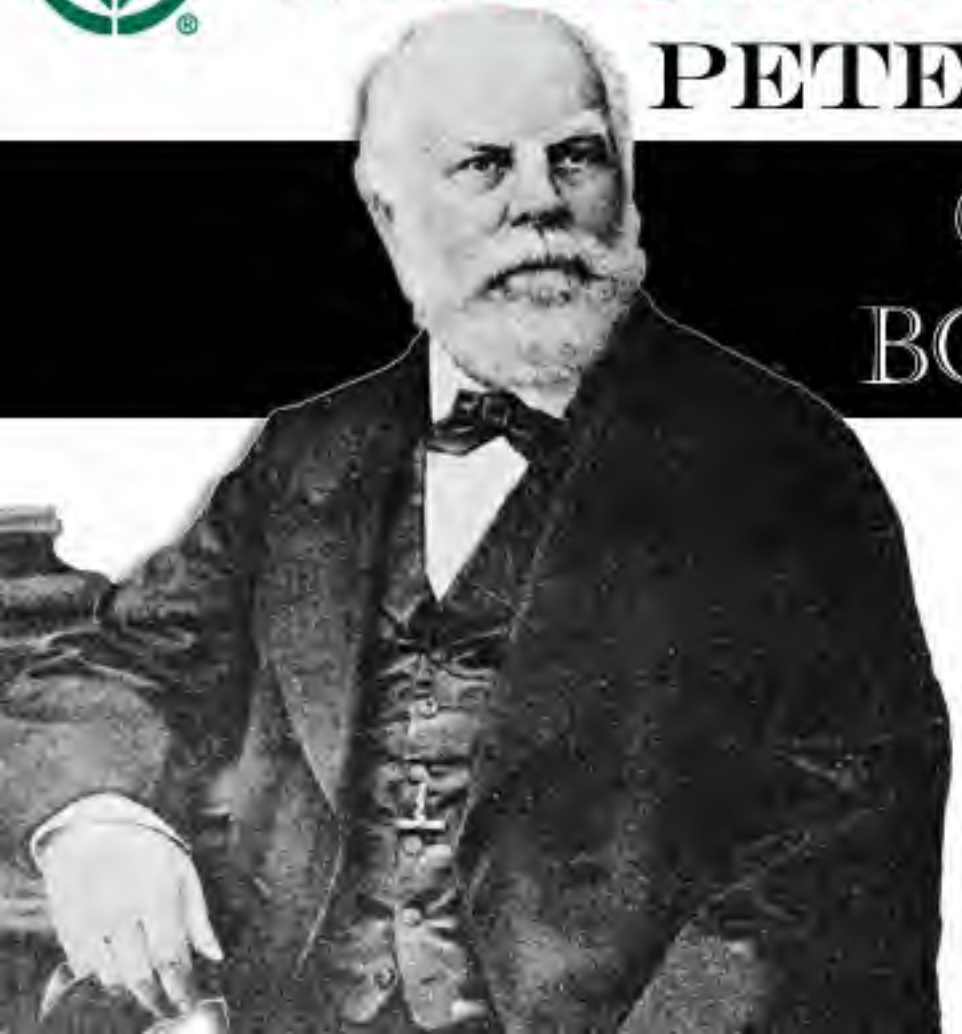

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Isoetes Braunii Dur

On the margin of Lake Winnepesaugee N Hampshire, at "the Weirs" where the rail Road from Portsmouth runs along the bank of the Lake, near where the boat for Wolfsborough lands. with Endivalon etc - at the time when I found it half out of water. — I also found it below near the Bridge a little farther on, where it grows with Najas, Gratiola aurea etc.

J. Engelmann, Sept 1856

At the lower side of the bridge about ¼ mile from the Weirs, in about a foot of Water

Horace Mann Sept 23 1863

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ST. LOUIS, MO.

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Asotes Bracenii

Nov 9 1866

Echo Lake N. H. July 31 1863, Wm Booth

15 on 18 Cenier

4 — 4½ inches

$\frac{24.5 - 27.2}{60} = 0.41 - 0.45$ mm diamt

unisje spores
characteristically echinulate

×2

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Isoetes Braunii Dur

Echolake about the middle of the
southern half of the Lake, in from
2 - 4 feet of water
Von Bodt - Gift Nov 28 1866

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PHARMACEUTISTS,
Cor. 4th & Walnut, under Southern Hotel,
Cor. 2d & Walnut, under Barnum's Hotel,
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Isoetes Braunii Kunze

Submersa tenuissima radicibus nitescentibus

Trunco bilobo -

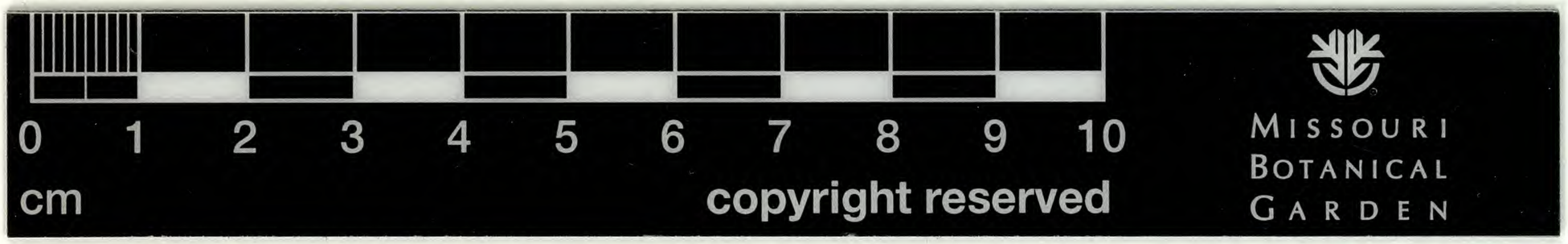
foliis (subulatis) strictis s. patulo recurvis, supra planis
subtus rotundatis

sporis obsolete - oblongis vix tertia parte minoribus quam in I. lacustri, echinulatis

diametro 0,— — 0,— millim.

Habitat

In paludibus lacubusque Novi Eboraci et Novae Angliae (Torrey, Dartt
Lake Winnipesaukee (J. Eyle 1856, Mann Allyster Pond (Tucker, Dartt
Niagara River Cobas Buffalo (J.W. Clute 1865. molli, stagnat, rarius
in rivulos fluviatiles
Trunk of the Cayuga Lake



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With short stalks, leaves [illegible] when
contracted long, dull green or reddish; [illegible]
occasionally with stouter, rarely with thick
spinules of spores slender, about long,

This is the representative of the large
I. echinospora, but is really distinct by
the large valve, which leaves only a very
of about [illegible] than it. Diff
with spores [illegible].

Echinospora has spores 0.48–0.55 diam
Durieu l.c. notices the larger spores of this latter

Geol. Pos. & Loc.—Mountain Limestone, Indiana.

POLYPORA RIGIDA, Prout.

Polyzoum a semicircular, flat, flabelliform expansion, radiating from a central axis.

Longitudinal rays small, sharply defined; straight, rigid and wire-like upon the reverse; seldom branched, sometimes anastomosing; mostly branching from dissepiments, by which the fenestrules are much diminished in size.

Dissepiments, on the reverse, small and sharply defined; mostly opposite, in straight or curved lines; sometimes alternate.

Fenestrules large, longer than broad, mostly quadrangular, sometimes rounded at angles and more or less irregular in size. On the medallion face the fenestrules are crowded by the growth of the cells, and are more or less oblong oval.

RETEPORA HAMILTONENSIS, Prout.

Bryozoum a broad, funnel-shaped expansion, with longitudinal rays frequently branching and rapidly diverging so as to give an explanate or flat form to the funnel, which only shows the reverse or lower surface.

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Chalices or *cells* large, irregularly placed near each other upon the two sides of a fine line or keel, usually two, sometimes one, and sometimes three to each fenestrule.

Reverse unknown.

Geol. Pos. & Loc.—This beautiful and delicate species was found on the same slab with the *F. nodosa*, and belongs to the Hamilton Group.

Fenestella bifurcata, Prout.

Polyzoum or *Bryozoum*, a fan-like expansion, with large longitudinal rays and oscules distinctly visible to the naked eye.

Longitudinal rays large, basaltiform, with a middle keel and two rows of chalices; bifurcating seldom towards the base, but frequently and mostly in opposite series towards the middle; four to five in each series.

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J. Bootii
Braun in Litt
Ber 1867

Boeckia minuta var

Oct 6 5 1866

Woburn Wm Boott " very specimen wholly emersed

in a small pond, without outlet 18 Sept 1866

Spores 0.37–0.47 mm Diam.

Spores very delicate

minutepore 0.029–0.032

This is J. Bootii Braun

in Litt Ber 1867

leaves bright green and

very stiffly erect" tubulate, 12–25

about 4 inches high — in one specimen

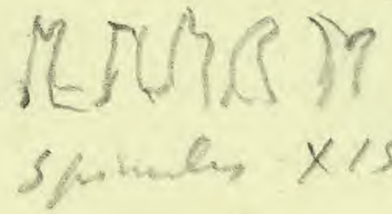
45 leaves with macroformagia and

4 terminal small intermark male

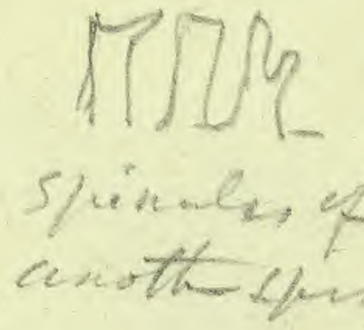
Spermogia. —

×280

many stomata



Spindles ×150



Spindles of another Species

J. Bootii Braun in Litt !

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Isoetes muricata Durr.

In the shallower and quieter parts
of a rapid brook in 6–24 inches
of water, always submerged
W Boott ; Cliff. Sept 22 1866
(Solitary) generally in clear naked
scattered gravel

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T. C. Wood.

Night Bell on Washington Ave.

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Isoetes *muricata*

Sept 23 1866

foliis flexuosis, Abbajona River of Mystic

near Boston

Wm Boott Sept 18 1866

×280

×2

×10

seed of leaf

diameter of spore ×60

30-35 mostly 32-33 / 60 mm

= 0.50-0.58, mostly 0.53-0.55 mm

leaves 10-15, 4-6 inches long, very dark green, twisted

×60

spindles × 150

microspore × 415

12-13 / 415 mm

= 0.029-0.032 mm

very few stomata towards the tip of the leaf none found lower down

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Isoetes muricata minor Sept 12 1866

Woburn Wm Booth Sept 22

leaves 10–15 cm
4 inches long

sect of leaf
×10

upper part

×2

part of full size showing

longer
×60

lower part

smallest

diameter of spore ×60

0.45–0.57 mm diam

ascospores in water
× 415

=0.028–0.031

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Sect of leaf from Top to base

Isoetes muricata Dur.
w/o burn Mass, Wm Boott Sept 2?

September 7 1866

25–26 leaves, 7–12 inches long

over

×10

Coll. Sept 18
horizontal sect
×2

×2

a

a

a plate where the old part of stem is thrown off.

×2

over

×280

epidermis cells without stomata

tubercles ×150

tubercles ×150

0.46–0.52
mostly 0.48 mm
27½–29–31
60 mm

×150 Spines

Specimen collected Sept 18

no liber observed

parenchyma cells

androsporangia ×415

0.027–0.029

+ Eight ribs

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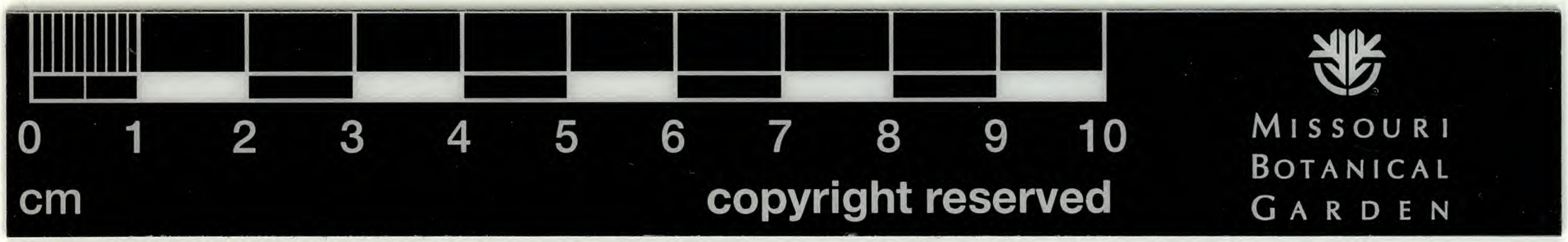
old Bed of stem sections still
adhering at beginning of September
but quite black and rotten.

In one specimen I find 15 female
and 4 unripe small innermost
male Sporangia in a pod with outlet
this is Specimens coll. Sept 18th by Booth near Woburn
Dr Bootts have spores of this diameter
0,37 – 0.47, mostly 0.42 mm.
J. Booth spins very fine & delicate, like those of D. Boreri
Bost but half as long MMMM spins ×150
microsporo ——— ×415 = 0,029 – 0.032
Spins of another specimen
I am fortunate
Ice fullers earth



P. mucronata Nov 28 1867

Wm Booth Sept 29 Tufts Swamp — Brook

23.5 = 28.5 = 0.39 - 0.48 mm diam
60

20 - 35 lines
15 - 27 c m long

Spirules x 150

Spirules very thin
Calder & Long

stomata very
few
here & there

Host of Mucronata,
Spores moved Booth.

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I. minirata

Nov 28 '67

Wm Boott May 25-'67 - full maturity

$\frac{28-33}{60}$ = 0.47–0.55 mm diam

In a specimen collected Jan 29 I noted fully mature but immature, July 14 many stomata were found towards tip of leaf

spicules short and often confluent especially on the 3 upper segments

spicules short, broad and blunt

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Isoetes [illegible] media submersa laete virens
tumro bilobo lobis (fere globosis) dimidiatis amplexicaulibus
foliis (10–25) ~~subulatis~~ laete viridibus supra
leviter canaliculatis, subtus convexis rotundatis;
sporangiis oblongis dimidiis velo ~~pro majore parte~~ tectis;
~~vel tertia parte nudis~~ tecta
macrosporis angulis commissuralibus tenuibus, muriculatis, diametro
~~0.[illegible]~~ 0.[illegible] millim.
microsporis levibus

In ponds at Woburn Massachusetts rebuked
or newly by the recess of the tides: fall
partly emerged. Aug Sept. — Towards the close
of the season ~~the~~ the leaves ~~are~~ the shorter
divaricate; leaves 3–10 inches long; bright green, without

Alex. Leitch.
APOTHECARY & CHEMIST,
Cor. 4th & Olive Sts. St. Louis.

August 1st 1860

stouts, Spicules of spors stout, or sub-slender, usually abt 0, mm long.

This plat is closely allied to I. Brac-with which it has rows the large warts & the small lacunæ, & the spicules macrospores; But I. Brac- has much smaller plat, macrospores best. with much longer spicules, macrospores roughened on the edges.

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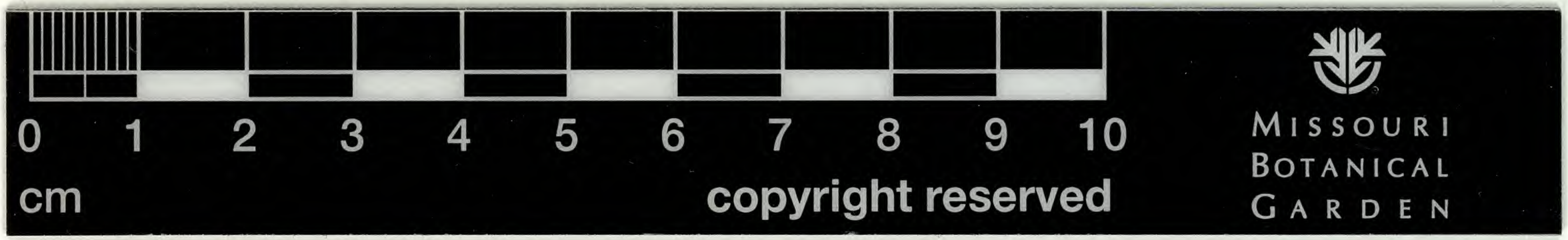
A. Braun Zürich 1867:

L. muricata is distinguishable from Braunii by the short tubercles or spikes of the macrospores the dark green This leaves (with chlorophyll) which have no stomata

GEO. ENGL

Offic

None but Allens & Her
French and German Chemicals



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E STREET
ST. LOUIS.

North West Corner
and Garrison Ave.

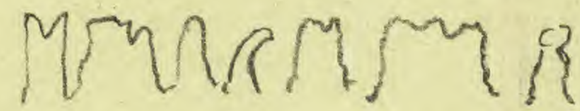
Isoëtes echinospora var *robusta* ?

Dec 3 1879

C. J. Pringle leg : Lake Champlain, north end of Isle La Motte Sept 20 1879
: water 1–2 feet deep, : firm sand and silt

macrospores

$\frac{21.5-33}{60}$ = 0.36 – 0.55 mm



spinules × 150

Stomata abundant all over the leaf

leaves 25 – 70 in number
4 – 8 inches long

microspores
$\frac{.11-13}{415}$ = 0.026 to 0.031
usually 0.027 – 0.028
smooth edge
(not quite mature)

many light brown sclerodermic cells in sporangium

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APOTHECARY,

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S.W.

№ 10. St Robbins

Isoetes echinospora

Spores 0.49 – 0.49 m m long, ridges rather
angles
incospicuous; leaves scarred
about 6 c. m. long.

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ALEX. LI

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D. echinospora
var Boottii
Small sand Bog in Woburn Sept 8 1867

Nov 29 1867

W. Boott

$\frac{26.5-29}{60}$ = 0.44–0.48 mm diam

20–25 Cm long

9–12 Cm long

spirals X 150
very slender and very crowded

Spore cells
X280

X 2

$\frac{11-12.5}{415}$ = 0.027–0.030 mm long

Stomata very few and scattered often difficult to find

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Isoetes riparia? Nov 25 1865

"West Cambridge Aug. 1860" Wm Booth

Specimen sent to Braun. — Orig. spec. mutilated

other half preserved in Hb. Gray — Ex is from

Woburn, not West Cambridge

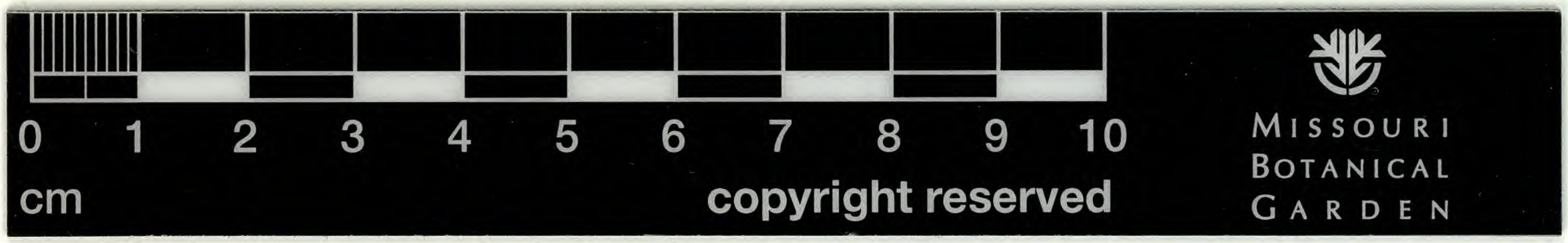
Spores young (August)

incomplete

11–14,5 li

60

= 0.18–0.24 li. = 0.40–0.50 mm



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